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SUMMARY REPORT ON FINANCIAL, SIZE AND PERFORMANCE DATA FOR 167 CASH GRAIN FARMS AND 128 DAIRY FARMS, OHIO, 1984

by

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CONTENTS

Summary Report On Financial, Size and Performance Data For 167 Cash Grain Farms and 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

INTRODUCTION

This summary is compiled from 1984 records of a sample of 167 cash grain farms and 128 Ohio dairy farms, sorted by net farm earnings, participating in the Agrifax farm records program. Agrifax is operated through the Federal Land Bank and Federal Intermediate Credit Bank of Louisville, District IV, which include the states of Indiana, Kentucky, Tennessee and Ohio. Data on Ohio farms were made available to The Ohio State University for research purposes, with the understanding that no individual farm data would be identified by name or location.

Farms in the sample were defined as cash grain or dairy farms if at least 50% of the Value of Farm Production was from the sale of crops for cash grain farms or from the sale of milk and dairy products for dairy farms. These farms are not necessarily representative of all Ohio cash grain and dairy farms, but they do provide an indication of results for Ohio's cash grain and dairy producers. Similar data is also available on a sample of 167 cash grain farms and 128 dairy farms sorted by debt to asset ratios and size measures.

These farms were summarized for various characteristics including financial performance, debt, farm size, and economic efficiency. In addition, the farms were separated by net farm earnings into three subgroups: top one-third, middle one-third, and bottom-one third. Various tables show the results of summarizing the data by these categories. The results of the cash grain farms are presented first, followed by the dairy farms.

HIGHLIGHTS -- CASH GRAIN FARMS

Overview of Farms Summarized

The 167 cash grain farms averaged 662 tillable acres, utilized an average of 1.8 Man Year Equivalents(1 MYE equals 3,000 hours), and had annual sales as measured by Value of Farm Production of $182,230 (Table 1). Of the total 662 acres of tillable land operated, 31% were owned, 46% cash rented and 23 % share rented. The top one-third farms had more tillable acres at 802 acres and used less total labor at 1.6 MYE than the average farm. The top one-third of farms owned less tillable acres and rented more, especially share rent, compared to the other groups.

Measure of Earnings

Losses were the typical result for these Ohio cash grain farms in 1984. On average, these 167 farms generated net farm earnings of ($5,598), return to unpaid labor and management of

Table 1: Measures of Size for 167 Cash Grain Farms by Net Farm Earnings, Ohio, 1984.

Size Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms
NUMBER OF FARMS	Number	55	57	55	167
TOTAL LABOR USED	MYE	1.6	1.2	2.0	1.8
TILLABLE ACRES FARMED	Acres	802	519	672	662
VALUE OF FARM PRODUCTION	$	$232,332	$139,542	$176,366	$182,230
PERCENT OF TILLABLE ACRES					
Owned	Percent	25	34	36	31
Cash Rented	Percent	47	45	45	46
Share Rented	Percent	28	20	19	23

Table 2: Income, Expense and Measures of Earnings for 167 Cash Grain Farms By Net Farm Earnings, Ohio, 1984.

Financial Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms
Expense					
Total Variable Expense	$	$108,398	$70,172	$108,115	$95,259
Total Fixed Expense	$	$97,556	$72,783	$108,086	$92,569
TOTAL FARM EXPENSE	$	$205,954	$142,955	$216,201	$187,828
NET FARM EARNINGS	$	$26,378	($3,413)	($39,835)	($5,598)
RETURN TO UNPAID LABOR & MGT	$	($592)	($21,959)	($62,539)	($28,284)
RETURN TO INVESTMENT	$	$59,727	$4,592	($54,521)	$3,283
RETURN TO EQUITY	$	$25,786	($25,372)	($102,374)	($33,882)

($28,284), return on investment of $3,283, and a return on equity of ($33,882) (Table 2). However, some farms showed good profits. The top one-third of the farms averaged $26,378 in net farm earnings, while the bottom one-third of the farms averaged a loss of ($39,835). Net Farm Earnings is the income earned by the farm, after subtracting all cash expenses, inventory changes, and depreciation. Net Farm Earning is money available to pay for family living, income tax and principal payments.

Return to Unpaid Labor and Management was negative on average for each group of farms ranging from ($592) to ($62,539) for the top and bottom one-third of the farms, respectively. This measure is calculated by deducting a 6 percent charge for equity capital from Net Farm Earnings. Return to investment ranged from $59,727 for the top one-third farms down to ($54,521) for the bottom third of the farms. Return to equity ranged from $25,786 for the top third down to ($102,374) for the bottom third. Again, some farms showed positive outcomes.

Financial Performance Measures

Balance sheet ratios help to portray the financial situation of these cash grain farmers. Measures of liquidity give an indication of how well they may be able to make annual payments. Lenders like the Current Ratio, comparing current assets to current liabilities, to be 2.0 or better. The average for all farms in 1984 was only 1.24 (Table 3), much below the desired level. The ratio of current to total liabilities of .28 shows that just over one-fourth of their liabilities is due annually which is higher than desirable. The Intermediate Ratio, comparing current & intermediate assets to current & intermediate liabilities, of 1.76 is also below the desired ratio of at least 2.0.

Turning to solvency ratios, the average Debt to Asset Ratio (and its mirror image,the Equity Ratio) for all farms was 50%, indicating they have about equal amounts of equity and debt. Net Farm Earnings as a Percent of Average Farm Assets was a negative, at (.81)%.

In the individual categories, the top one-third group of farms reported healthier financial measures for each of the measures shown. This group had greater liquidity, lower debt to asset ratio, and positive earnings as a percent of farm assets. Thus, a healthier balance sheet seemed to accompany positive farm income, although not guarantee it.

Measures of Financial Efficiency

Cash Grain farms require large amounts of capital relative to sales. In 1984, these farms had a average Turnover Ratio of .26 (Table 4), which means they averaged 26 cents in sales for each dollar of investment. The top one-third group had the highest turnover ratio, averaging .31, compared to the bottom

Table 3: Financial Performance Measures on 167 Cash Grain Farms By Net Farm Earnings, Ohio, 1984.

Financial Measures	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms	Unit
Liquidity						
Current Ratio (CA/CL)	Ratio	1.55	1.15	1.04	1.24	
CurrLiab/TotLiab (CL/TL)	Ratio	.30	.29	.26	.28	
Inter. (CA+IA)/(CL+TL)	Ratio	1.94	1.80	1.56	1.76	
Solvency						
Debt/Asset(D/A)or(TL/TA)	Ratio	0.44	0.49	0.55	0.50	
Equity Ratio (TE/TL)	Ratio	0.56	0.51	0.45	0.50	
Leverage Ratio (TL/TE)	Ratio	0.78	0.97	1.22	0.98	
Profitability						
Net Farm Earnings as % of Average Farm Assets	%	3.56	(0.62)	(5.11)	(0.81)	

Table 4: Measures of Financial Efficiency on 167 Cash Grain Farms By Net Farm Earnings, Ohio, 1984.

Financial Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms
FINANCIAL EFFICIENCY					
Turnover Ratio	Ratio	0.31	0.25	0.23	0.26
PROFITABILITY					
Net Profit Margin	Percent	25.71	3.29	(30.91)	1.80
Return on Investment	Percent	8.06	0.83	(7.00)	0.48
Return on Equity	Percent	5.74	(8.21)	(27.05)	(8.96)
Rate of Growth in Equity	Percent	2.35	(3.87)	(12.01)	(4.12)
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION					
Interest %	%	14.61	21.47	27.13	20.39
Depreciation %	%	11.42	14.54	15.80	13.63
Operating Expense %	%	62.61	66.43	79.66	69.04
Net Farm Earnings %	%	11.35	(2.45)	(22.59)	(3.07)

one-third average of .23.

Profitability varied widely between the 3 groups. Net Profit Margin averaged 1.80 percent, but averaged 25.71 percent for the top 1/3 to a (30.91)percent for the bottom one-third of the farms. Return on Investment averaged .48 percent with a range from 8.06 to -7.00, while Return on Equity averaged -8.96 with a range of 5.74 to -12.01 from the top to the bottom one-third of the farms. The Rate of Growth in Equity for the all farms averaged -3.07 percent, but ranged from a high of 11.35 for the top third farms to a low of -22.59 for the bottom third.

It is also interesting to look at a breakdown of the factors that must be covered by the Value of Farm Production. In an accounting definition, Value of Farm Production must equal Variable Expense plus Fixed Expense plus Net Farm Earnings. Examining the importance of these parts, Table 4 shows that Interest Expense accounted for 20%, Depreciation 14%, Other Operating Expenses for 69% and the residual, Net Farm Earnings, were negative at (3%). However, the top one-third of the farms had expenses of only 14% for Interest,11% for depreciation and 63% for Other Operating Expense, generating a residual of 11% for Net Farm Earnings.

Efficiency and Cost Measures

The Value of Crop Production per tillable acre and Value of Total Production per acre averaged $225 and $275, respectively, for the Ohio cash grain farms (Table 5). The top one-third of the farms had the lowest value of crop production per acre but the highest value of total production per acre. Variable Expense averaged $144, Fixed Expense $140, and Total Expense $284. The top third had the lowest average expense for Variable, Fixed, and Total Expense per acre at $135, $122, and $257, respectively.

Machinery Investment Per Acre increased from a low of $164 for the most profitable cash grain farms to a high of $210 for the least profitable farms, with an average of $184 for all farms. Machinery Costs Per Acre increased similarly from $70 to $83, while average machinery cost per acre was $76 for all farms. Seed & Plant, Fertilizer & Lime, and Spray & Chemical costs per acre were each slightly higher for the bottom 1/3 of farms compared to the other groups of farms.

Distribution of Cash Grain Farms by Net Farm Earnings, Debt to Asset Ratio, and Tillable Acres.

Farm size and debt to asset ratio are two measures typically felt to contribute to profit. Tables 6 and 7 are a crude test of the linkage of each of these variables to net farm earnings.

The number of farms in each category sorted by both net farm earnings and tillable acres is shown in Table 6. If increased size of farm was directly correlated with increased net farm

Table 5: Efficiency Measures and Cost per Tillable Acre on 167 Cash Grain Farms By Net Farm Earnings, Ohio, 1984.

		FARMS RANKED BY NET FARM EARNINGS			
Efficiency Characteristics	Unit	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
PRODUCTION EFFICIENCY					
Value of Crop Production/TA	$/A	$220.69	$231.65	$223.91	$224.90
Value of Total Prod./T.A.	$/A	$289.69	$268.68	$262.44	$275.27
Variable Expense Per T.A.	$/A	$135.16	$135.21	$160.89	$143.90
Fixed Expense Per T.A.	$/A	$121.64	$140.24	$160.84	$139.83
Total Expense Per T.A.	$/A	$256.80	$275.44	$321.73	$283.73
Machinery Investment/T.A.	$/A	$163.65	$180.43	$209.64	$183.66
Machinery Cost Per T.A.					
Repair Machinery	$/A	$12.47	$11.98	$14.99	$13.19
Custom Hire	$/A	$2.67	$2.86	$4.12	$3.21
Fuel & Lube Cost	$/A	$16.63	$16.63	$17.49	$16.93
Equipment Depreciation	$/A	$26.06	$30.16	$30.29	$28.60
Machinery Invest @7.5%	$/A	$12.27	$13.53	$15.72	$13.77
Machinery Cost Per T.A.	$/A	$70.10	$75.15	$82.61	$75.70
Seed & Plant Cost/TA	$/A	$14.67	$14.45	$16.50	$15.24
Fert. & Lime Cost/TA	$/A	$36.62	$35.76	$38.98	$37.22
Spray and Chem Cost/TA	$/A	$18.57	$19.17	$19.47	$19.05
CAPITAL INVESTMENT					
Feed & Crop Capital	$	$106,905	$69,355	$83,239	$86,294
Livestock Capital	$	$14,058	$13,977	$12,093	$13,383
Machinery Capital	$	$131,246	$93,641	$140,876	$121,583
Land & Building Capital	$	$438,088	$342,616	$489,310	$422,371
Other Capital	$	$50,834	$30,813	$52,933	$44,692
TOTAL FARM ASSETS	$	$741,131	$550,402	$778,451	$688,323

earnings, the top 1/3 of farms would be primarily the biggest farms, the middle 1/3 would be a mix of all sizes, and the bottom 1/3 would be largely the smallest farms. In Table 6, the top 1/3 are primarily the bigger farms, especially those with 500 tillable acres, or more. However, in the middle 1/3, the two small size classes dominate. And in the bottom 1/3, all sizes seem to share in the misery equally. Exactly 50% of the 751-1000 acre farms are in the bottom 1/3, while only 29% of the 500-750 and over 1000 acre farms are found here. Thus size and income relate fairly well among the more profitable farms, but all sizes are found among those with the largest losses.

In Table 7, sorting by Debt To Asset Ratio and Net Farm Earnings, we would expect more farms with low D/A ratios in the top 1/3 and more farms with high D/A Ratios to occur in the bottom 1/3 of farms. Overall, in table 7, the pattern of low debt to asset ratios associated with high earnings and high debt to asset ratios associated with low earnings is evident. The top 1/3 group contains 55% of those with a D/A Ratio of up to 30 %, and the bottom 1/3 group has 59% of those with a D/A Ratio of 71% or more.

HIGHLIGHTS -- DAIRY FARMS

Overview of Farms Summarized

The 128 Dairy Farms averaged 78.4 cows, 368 tillable acres, utilized 2.4 Man Year Equivalents (1 MYE equals 3,000 hours), and had annual sales as measured by Value of Farm Production of $208,505 (Table 8). Of the total 368 tillable acres farmed, 48% were owned, 47% cash rented, and 5% shared rented. The top 1/3 of the farms share rented a slightly higher percentage of their acreage. While the bottom 1/3 farmed 80 acres more land and milked 2 more cows, their value of farm production was slightly less than the top farms, indicating problems of productivity were probably part of the reason for being in the bottom 1/3.

Measures of Earnings

Net Farm Earnings were positive and averaged $2,580 for the 167 Ohio dairy farms summarized in 1984. However, earnings were again variable between groups, ranging from $37,131 for the top group of farms down to a negative ($30,963) for the bottom 1/3 of farms (Table 9). Return to Unpaid Labor & Management was negative and averaged ($20,955) for the 128 dairy farms in 1984. This measure is calculated by deducting a 6 percent charge for equity capital from Net Farm Earnings. Return to Investment was positive, averaging $15,946 while Return to Equity was also negative ($18,141). Earnings on Ohio's dairy farms in 1984 were better than for Ohio's cash grain farms, but only the top 1/3 of farms had positive values for all measures reported.

Table 6: Distribution of 167 Cash Grain Farms by Net Farm Earnings and Tillable Acres, Ohio, 1984

Tillable Acres	FARMS RANKED BY NET FARM EARNINGS			
	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
Up to 250	1	14	8	23
	(4%)	(61%)	(35%)	(100%)
251-500	12	17	14	43
	(28%)	(39%)	(33%)	(100%)
501-750	21	16	15	52
	(40%)	(31%)	(29%)	(100%)
751-1000	7	2	9	18
	(39%)	(11%)	(50%)	(100%)
Over 1000	14	8	9	31
	(45%)	(26%)	(29%)	(100%)
Total	55	57	55	167
	(33%)	(34%)	(33%)	(100%)

Note: Number in brackets represent the percent of row total.

Table 7: Distribution of 167 Cash Grain Farms by Net Farm Earnings and Debt to Asset Ratio, Ohio, 1984

Debt to Asset Ratio	FARMS RANKED BY NET FARM EARNINGS			
	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
Up to 30	16	8	5	29
	(55%)	(28%)	(17%)	(100%)
31 to 50	18	19	17	54
	(33%)	(35%)	(32%)	(100%)
51 to 70	16	22	14	52
	(31%)	(42%)	(27%)	(100%)
71 Plus	5	8	19	32
	(16%)	(25%)	(59%)	(100%)
TOTAL	55	57	55	167
	(33%)	(34%)	(33%)	(100%)

Note: Number in brackets represent the percent of row total.

Table 8: Number of Farms and Measures of Size for 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Size Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS Top 1/3	Middle 1/3	Bottom 1/3	All Farms
NUMBER OF FARMS	Number	42	44	42	128
NUMBER OF DAIRY COWS	Head	86	62	88	78.4
TILLABLE ACRES FARMED	Acres	360	306	441	368.0
TOTAL LABOR USED	MYE	2.4	2.2	2.5	2.4
VALUE OF FARM PRODUCTION	$	$239,977	$155,680	$232,372	$208,505
PERCENT OF TILLABLE ACRES					
Owned	Percent	45	47	52	48
Cash Rented	Percent	47	51	45	47
Share Rented	Percent	8	3	3	5

Table 9: Income, Expense, and Measures of Earnings For 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Financial Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS Top 1/3	Middle 1/3	Bottom 1/3	All Farms
EXPENSE					
Total Variable Expense	$	$123,217	$94,143	$152,001	$122,668
Total Fixed Expense	$	$79,629	$59,918	$111,334	$83,257
TOTAL FARM EXPENSE	$	$202,846	$154,061	$263,335	$205,924
NET FARM EARNINGS	$	$37,131	$1,619	($30,963)	$2,580
RETURN TO UNPAID LABOR & MGT	$	$11,925	($19,381)	($55,485)	($20,955)
RETURN TO INVESTMENT	$	$58,313	$5,717	($40,268)	$15,946
RETURN TO EQUITY	$	$25,206	($17,762)	($86,448)	($18,141)

Balance Sheet Ratios

Balance sheet data for the dairy farms summarized here show major differences between groups, but even the top 1/3 of farms have some financial concerns. The average Current Ratio for all farms in 1984 was only 1.49, below the desired level of 2.0 (Table 10). The ratio of current to total liabilities of .17 shows that just over 17% of their liabilities is due annually. However, the Intermediate Ratio, comparing current & intermediate assets to current & intermediate liabilities, at 2.50 is above the desired ratio of at least 2.0.

Turning to solvency ratios, the average Debt to Asset Ratio (and its mirror image, the Equity Ratio) for all farms was 46% and 54%, respectively, indicating they have slightly more equity than debt. The farms are not extremely highly leveraged, as the average leverage ratio or liabilities to equity is .85. Net Farm Earnings as a Percent of Average Farm Assets was just positive.

The top farms had much better current ratios and intermediate ratios on average at 1.78 and 2.84 respectively while the bottom farms had slightly lower ratios at 1.10 and 2.02. The top one-third of the farms had an average debt to asset ratio of .41, probably manageable, but still large. Net Farm Earnings as a percent of Average Farm Assets ranged from 5.67% for the top group of farms to a low of (3.73%) for the bottom group.

Measures of Financial Efficiency

Dairy Farms require a large amount of capital relative to sales. In 1984, these farms averaged 31 cents in sales for each dollar of investment (Table 11). The Turnover Ratio was .37 for the top farms and .28 for the bottom one-third farms. Net Profit Margin averaged 7.65, Return on Investment 2.20%, Return on Equity -4.62% and Rate of Growth in Equity of -2.80%. Net Profit Margin ranged from 24.30 for the top farms to (17.33) for the bottom farms. Other measures of profitability were positive for the top 1/3, and should provide a base for continued financial strength.

The top 1/3 category also reported lower expenses in each of the four categories that equal Value of Farm Production. Overall, the 167 Ohio dairy farms averaged 16% for Interest Expense, 13% for Depreciation, 69% for Other Operating Expense and 1.24% of Net Farm Earnings. However, the top 1/3 of farms by earnings had only 14% Interest Expense, 11% Depreciation, 59% Other Operating Expense and generated 15.47% Net Farm Earning as a percent of the Value of Farm Production.

Efficiency and Cost Measures Per Tillable Acre

The average dairy farm had a Value of Crop Production per tillable acre of $58, with a Total Value of Production per tillable acre of $567 (Table 12). Value of Crop Production is

Table 10: Financial Performance Measures on 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Financial Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms
Liquidity Ratios					
Current Ratio (CA/CL)	Ratio	1.78	1.94	1.10	1.49
CurrLiab/TotLiab (CL/TL)	Ratio	.17	.15	.18	.17
Inter. (CA+IA)/(CL+IL)	Ratio	2.84	3.04	2.02	2.50
Solvency Ratios					
Debt/Asset (D/A)or(TL/TA)	Ratio	0.41	0.40	0.53	0.46
Equity Ratio (TE/TL)	Ratio	0.59	0.60	0.46	0.54
Leverage Ratio (TL/TE)	Ratio	0.70	0.68	1.16	0.85
Profitability					
Net Farm Earnings as % of Average Farm Assets	$	5.67	0.31	(3.73)	0.39

Table 11: Measures of Financial Efficiency on 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Efficiency Measures	Unit	FARMS RANKED BY NET FARM EARNINGS: Top 1/3	Middle 1/3	Bottom 1/3	All Farms
FINANCIAL EFFICIENCY					
Turnover Ratio	Ratio	0.37	0.30	0.28	0.31
PROFITABILITY					
Net Profit Margin	Percent	24.30	3.67	(17.33)	7.65
Return on Investment	Percent	8.93	1.08	(4.85)	2.20
Return on Equity	Percent	6.00	(5.07)	(21.15)	(4.62)
Rate of Growth in Equity	Percent	3.87	(2.15)	(10.19)	(2.80)
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION					
Interest	Percent	13.80	15.08	19.87	16.35
Depreciation	Percent	11.38	13.23	15.10	13.22
Other Operating Expense	Percent	59.34	70.64	78.36	69.20
Net Farm Earnings	Percent	15.47	1.04	(13.32)	1.24
Total	Percent	100.00	100.00	100.00	100.00

only the value of cash crops sold, and does not include the value of hay and grain fed. Machinery Investment Per Tillable Acre averaged $303 and Machine Cost Per Tillable Acre averaged $123 per acre. These costs are higher than for cash grain farms, since they include both field and livestock machinery and equipment. Seed & Plant Cost was $14.28, Fertilizer and Lime Cost $38.45, and Spray and Chemical Cost $13.80 per tillable acre. The 128 farms averaged $667,923 in Total Farm Assets.

The top group had a Value of Total Production per acre of $661, $134 more per acre than the bottom group at $527 per acre. The top 1/3 of farms had slightly higher Machinery Investment and Machinery Cost Per Acre at $334 and $130 per acre, respectively. However, on average most costs were very similar for each group of farms. The bottom one-third farms did have much larger total farm assets at $829,878 with considerably more investment in land and buildings at $446,992 than the average farm of $353,897.

Efficiency and Cost Measures Per Cow

The average number of dairy cows was 79 on the 128 Ohio dairy farms summarized for 1984(Table 13). Milk production per cow averaged 14,426 pounds and Total Milk Production 1,133,600 pounds. Milk Sales per Cow averaged $1,943 and Total Returns per cow $2,139. These farms averaged $4,218 of debt per cow in 1984. Returns Above Feed Fed Per Cow averaged $982.

The largest herds tended to fall in either the top or bottom 1/3 when sorted by earnings. The top and bottom groups averaged 86 and 88 cows per farm, while the middle farms averaged only 62 cows per farm.

Returns Above Feed Fed Per Cow were highest for the top 1/3 of farms at $1,142,and dropped to $945 and $862 for the middle and bottom groups, respectively. This appeared to be a result of doing a combination of things better than on the other farms. The top 1/3 of farms had higher production, lower debt per cow, and a lower value of feed fed per cow.

Distribution of Dairy Farms Sorted by Net Farm Earnings, Number of Cows, and Debt to Asset Ratio.

Similar tables were prepared for the 128 Ohio dairy farms comparing numbers of farms by Size and D/A Ratios to Net Farm Earnings. In Table 14, the 128 dairy farms were sorted by both Net Farm Earnings and the Number of Cows per farm. However, there appears to be little correlation between size and earnings.

Table 15 was sorted by Net Farm Earnings and by Debt to Asset Ratios. Here there does appear to be a tendency for farms with higher Debt to Asset Ratios to be associated with low Net Farm Earnings. For both cash grain and dairy farms, large size of operations is no guarantee of success, but a heavy debt load sharply reduces your chance to make a profit.

Table 12: Efficiency Measures and Cost per Tillable Acre on 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Efficiency Measures	Unit	FARMS RANKED BY NET FARM EARNINGS			
		Top 1/3	Middle 1/3	Bottom 1/3	All Farms
PRODUCTION EFFICIENCY PER TILLABLE ACRE					
Value of Crop Prod/TA	$/A	$48.72	$49.00	$72.58	$58.19
Value of Total Prod./TA	$/A	$660.61	$508.75	$526.92	$566.59
Machinery Investment/TA	$/A	$333.98	$262.51	$307.33	$303.09
Machinery Cost Per TA					
Repair Machinery	$/A	$25.98	$23.03	$23.44	$24.14
Custom hire	$/A	$6.25	$5.06	$4.72	$5.31
Lube & Fuel Cost	$/A	$21.65	$21.54	$21.72	$21.65
Equipment Depreciation	$/A	$51.10	$48.34	$47.92	$49.06
Machinery Invest @7.5%	$/A	$25.05	$19.69	$23.05	$22.73
Machinery Cost Per TA	$/A	$130.03	$117.65	$120.85	$122.88
Seed and Plant Cost Per TA	$/A	$14.15	$13.61	$14.87	$14.28
Fert. and Lime Cost Per TA	$/A	$39.14	$34.70	$40.62	$38.45
Spray and Chem Cost Per TA	$/A	$13.94	$12.09	$14.93	$13.80
CAPITAL INVESTMENT					
Feed & Crop Capital	$	$54,087	$42,099	$61,452	$52,383
Livestock Capital	$	$121,634	$88,943	$148,744	$119,292
Machinery Capital	$	$120,234	$80,328	$135,533	$111,536
Land & Building Capital	$	$325,492	$292,146	$446,992	$353,897
Other Capital	$	$31,670	$23,947	$37,157	$30,816
TOTAL FARM ASSETS	$	$653,117	$527,463	$829,878	$667,923

Table 13: Dairy Production Measures on 128 Dairy Farms by Net Farm Earnings, Ohio, 1984.

Efficiency Measures	Unit	FARMS RANKED BY NET FARM EARNINGS			
		Top 1/3	Middle 1/3	Bottom 1/3	All Farms
NUMBER OF FARMS	Number	42	44	42	128
NO. OF DAIRY COWS	HEAD	86	62	88	78.4
TOTAL MILK PRODUCTION	CWT.	12,955	8,745	12,430	11,336
MILK PRODUCTION PER COW	LBS.	15,064	14,105	14,125	14,426
SALES OF DAIRY PRODUCTS	$	$174,282	$118,316	$166,804	$152,590
SALES OF DAIRY ANIMALS	$	$18,522	$11,512	$24,045	$17,925
OTHER DAIRY INCOME	$	$4,256	($3,281)	($9,394)	($2,814)
TOTAL DAIRY RETURNS	$	$197,060	$126,547	$181,455	$167,701
MILK SALES PER COW	$/COW	$2,027	$1,908	$1,896	$1,943
TOTAL RETURNS PER COW	$/COW	$2,291	$2,041	$2,062	$2,139
TOTAL DEBT PER COW	$/COW	$3,428	$3,832	$5,392	$4,218
VALUE OF FEED FED PER COW					
HAY	$/COW	$184	$218	$176	$193
CORN SILAGE	$/COW	$148	$155	$188	$163
GRASS SILAGE	$/COW	$11	$6	$6	$8
HAYLAGE	$/COW	$176	$137	$218	$176
CONCENTRATES	$/COW	$288	$286	$262	$279
PURCHASED FEED	$/COW	$343	$294	$350	$329
TOTAL VALUE OF FEED FED	$/COW	$1,150	$1,096	$1,200	$1,148
RETURNS ABOVE FEED FED/COW	$/COW	$1,142	$945	$862	$982
RETURNS PER $100 FEED FED	$/$100	$199	$186	$172	$186

Table 14: Distribution of 128 Dairy Farms by Net Farm Earnings and Number of Cows, Ohio, 1984

Number of Cows	FARMS RANKED BY NET FARM EARNINGS			
	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
20-39	6 (26%)	15 (65%)	2 (9%)	23 (100%)
40-69	8 (31%)	9 (35%)	9 (35%)	26 (100%)
60-79	11 (34%)	10 (31%)	11 (34%)	32 (100%)
80-119	9 (31%)	6 (21%)	14 (48%)	29 (100%)
120 Plus	8 (44%)	4 (22%)	6 (33%)	18 (100%)
TOTAL	42 (33%)	44 (34%)	42 (33%)	128 (100%)

Note: Number in brackets represent the percent of row total.

Table 15: Distribution of 128 Dairy Farms by Net Farm Earnings and Debt to Asset Ratio, Ohio, 1984

Debt to Asset Ratio	FARMS RANKED BY NET FARM EARNINGS			
	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
Up to 30	12 (36%)	15 (45%)	6 (18%)	33 (100%)
31 to 50	14 (48%)	6 (21%)	9 (31%)	29 (100%)
51 to 70	12 (32%)	13 (35%)	12 (32%)	37 (100%)
71 Plus	4 (14%)	10 (34%)	15 (52%)	29 (100%)
TOTAL	42 (32%)	44 (34%)	42 (34%)	128 (100%)

Note: Number in brackets represent the percent of row total.

GLOSSARY ---- Definitions arranged in alphabetical order.

CURRENT RATIO: Total current assets divided by total current liabilities.

DEBT to ASSET RATIO: Total liabilities divided by total assets.

EQUITY RATIO: Total equity divided by total assets.

INTERMEDIATE CAPITAL RATIO: Current assets plus intermediate assets all divided by the sum of current liabilities and intermediate liabilities.

LEVERAGE RATIO: Total liabilities divided by total equity.

NET CAPITAL RATIO: Total assets divided by total equity.

NET FARM EARNINGS: Value of farm production minus total farm expense (including variable and fixed expense).

NET NON-FARM INCOME: Amount reported as off-farm income minus off-farm expenses other than operator draw or income tax.

NET PROFIT MARGIN: Net Farm Earnings plus interest paid minus unpaid labor all divided by value of farm production.

OPERATING EXPENSE: Total farm expense minus interest paid and depreciation expense.

OPERATOR LABOR DRAW: Amount reported as withdrawn from the cash flow for personal use.

RATE of GROWTH IN EQUITY: Net Earnings divided by total equity.

RETURN to EQUITY: Net Farm Earnings minus unpaid labor and management.

ROE RATIO: Return to Equity divided by average total farm assets.

RETURN to INVESTMENT: Net Farm Earnings plus interest paid minus unpaid labor and management.

ROI RATIO: Return on Investment divided by average total farm assets.

RETURN to UNPAID LABOR and MANAGEMENT: Net Farm Earnings minus 6% of total assets.

TOTAL LABOR USED: The number of people working on a farm, one Man Year Equivalent (MYE) is equal to one person working 3000 hours per year.

TOTAL Net Earnings: Total farm income plus non-farm income minus total farm expense and non-farm expense other than operator draw and income tax.

TURNOVER RATIO: Value of farm production divided by average farm assets.

VALUE of FARM PRODUCTION: The amount of cash farm income (including breeding livestock and resale sales) plus crop and livestock inventory changes and accounts receivable changes, minus breeding livestock and resale purchases.